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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/114,665	07/13/1998	THOMAS R. BIELER	6550000013	9522

7590 01/29/2003
HARNES DICKY & PIERCE
P O BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

IP, SIKYIN

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 01/29/2003

21

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

Applicant(s)

Examiner

Group Art Unit

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 11/8/02
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 26-58 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 26-58 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims ²⁷~~26~~-30, 33-36, ^{41, 43-48, 52-53, 59, 60, 62-64, 66-71, 73-77}~~38-48~~, and 50-58 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over USP 5527628 to Anderson et al (col. 4, lines 15-27, col. 3, lines 18-32, and col. 5, lines 59 to col. 6, line 59).

4. The Anderson et al reference(s) disclose(s) the features including steps of combining a solder with the components of the intermetallic phases such as Cu and Ag to form a mixture (col. 5, line 59 to col. 6, line 12). The mixture can be formed as composite solder wire, solder sheet, solder ingot, and solder powder (col. 5, lines 60-62). The composite solder melt can be chill cast (col. 5, lines 67 to col. 6, line 2) to

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form an ingot which could be used form solder powder by melt atomization (col. 6, lines 14-15). Anderson et al do not disclose the claimed cooling rate and do not explicitly disclose to add an intermetallic component separately from the solder alloy. But, Anderson et al disclose the solder powder is produced by conventional atomization techniques (col. 6, lines 14-50) which is known in the art of cited reference that the cooling rate is at least 100 °C/sec. The examiner takes the official notice that conventional atomization methods would have the cooling rate at least 100 °C/sec. In col. 1, lines 39-41, Anderson has disclosed Sn-Ag, Sn-Sb, and Sn-Bi binary eutectic solders are known in the art of cited reference. Therefore, it is contemplated within ambit of ordinary skill artisan to use commercially available Sn-Ag solder as starting material to combine with Cu. It is well settled that the form of reactants is believed mere a choice between well known forms of such substances. In the absence of evidence of some unobvious aspect of their selection, use of those substances would seem to add nothing of patentable significance to the instant claims. In re Austin, et al., 149 USPQ 685, 688. Thus, the claimed invention is taught by the Anderson et al reference.

5. Claims 37 and ^{61, 65, 72, 75}~~49~~ are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5527628 to Anderson et al as applied to claims above, and further in view of Gibson et al.

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6. The claimed subject matter as is disclosed and rejected above by the cited reference(s) except for the volume of the intermetallic phase. However, Gibson et al in abstract teach 20 volume percent intermetallic phase would improve fatigue resistance. Therefore, it would have been obvious to one having ordinary skill in the art of the cited references at the time the invention was made to employ the teachings as taught by Gibson et al in order to improve the solder fatigue resistance. In re Venner, 120 USPQ 193 (CCPA 1958), In re LaVerne, et al., 108 USPQ 335, and In re Aller, et al., 105 USPQ 233.

7. Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5527628 to Anderson et al as applied to claims above, and further in view of USP 5520752 to Lucey, Jr. et al.

8. The claimed subject matter as is disclosed and rejected above by the cited reference(s) except for the different intermetallic phases and cooling methods. However, Lucey, Jr. et al in col. 3, line 64 to col. 4, line 5 teaches the other claimed intermetallic phases in the eutectic solder alloys and their cooling methods are conventional methods to produce conventional solders. It has been held that combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. In re Castner, 186 USPQ 213 (217). The use

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of conventional materials to perform their known functions in a conventional process is obvious. In re Raner, 134 USPQ 343 (CCPA 1962).

Response to Arguments

9. Applicant's arguments filed November 8, 2002 have been fully considered but they are not persuasive.

10. Applicants' argument as set forth in pages 5-7 of the instant remarks is noted. But, in col. 1, lines 39-41, Anderson has disclosed Sn-Ag, Sn-Sb, and Sn-Bi binary eutectic solders are known in the art of cited reference. Therefore, it is contemplated within ambit of ordinary skill artisan to use commercially available Sn-Ag solder as starting material to combine with Cu. Moreover, it is well settled that the form of reactants is believed mere a choice between well known forms of such substances. In the absence of evidence of some unobvious aspect of their selection, use of those substances would seem to add nothing of patentable significance to the instant claims. In re Austin, et al., 149 USPQ 685, 688.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (703) 308-2542. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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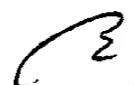
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supervisor, Dr. Roy V. King, can be reached on (703)-308-1146.

The facsimile phone number for this Art Unit 1742 are (703) 305-3601 (Official Paper only) and (703) 305-7719 (Unofficial Paper only). When filing a FAX in Technology Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0651.



SIKYIN IP
PRIMARY EXAMINER
ART UNIT 1742

S. Ip
January 27, 2003